REMARKS/ARGUMENTS

Reconsideration of this application is respectfully requested.

Amendments to the Specification

A typographical error is corrected on page 21, line 4 in which two occurrences of the word "final" are corrected to read –fine—to accord with the remainder of the text. No new matter has been added.

Corrections to the Drawings

FIG. 5 is replaced to correct typographical errors in steps 242 and 250 of the flow chart in which the word "Treshold" is correctly spelled –Threshold--.

Claim Rejections – 35 USC § 103

The Office Action rejects claims 1-6, 9-10, 14-16 and 21-23 under 35 U.S.C. 103(a) as being unpatentable over Aloni et al. in United States Patent No. 5,916,429 ('429). With all due respect, Aloni et al. fail to teach anything relevant to the claimed invention. Aloni et al. teach an inspection method including the steps of providing a patterned object to be inspected and compared with a reference, inspecting the patterned object and providing an output of information relating to the visual characteristics of the patterned object, comparing binary level information relating to the visual characteristics of the patterned object to binary level information relating to the visual characteristics of the reference, and comparing gray level information relating to the visual characteristics of the patterned object to gray level information relating to the visual characteristics of the reference. The patterned object includes objects such as a flat panel display, a reticle, a printed circuit board, a semiconductor wafer, a photomask, and a blank of any of the above. The objects are inspected using a raster scanner 10 which

provides an output that is compared to rasterized database data representing an ideal object to which the physical object is compared (column 10, lines 35-41).

It is therefore respectfully submitted that Aloni et al. do not represent analogous art and fail to teach anything that is relevant to the claimed invention.

With respect to claim 1, Aloni et al. do not recalibrate a micro-imaging system during acquisition of a plurality of high magnification images of a surface of interest to determine thermal drift. Applicant agrees that Aloni et al. teach an automatic registration subsystem operative to correct for continuous misregistration due to irregular velocity of the scanner, system vibrations and thermal drift. However, the automatic registration is performed to achieve a global match between a binary representation of the image and the database, on-the-fly, based on some neighbourhood around the currently scanned data. A registration vector is computed for each line of scanned image pixels representing the displacement to be applied to the database pixels so as to correctly align them with respect to the corresponding scanned image pixels (column 11, lines 47-54). Consequently, the registration process in accordance with Aloni et al. consists of continuously re-adjusting database output to align with corresponding pixel scanned data derived from a continuous raster scan of a patterned object. As taught in column 12, lines 15-20, the local displacement of the image I with respect to the database D may be computed by performing subtractions I-D and D-I, and subsequently determining the lengths of the runs in the streams I-D and D-I.

It is therefore abundantly clear to persons skilled in the art that the process taught by Aloni et al. is irrelevant to the claimed invention. For example, Aloni et al. do not position a field-of-view of a micro-imaging system over a calibration location on the surface of interest. As explained above, Aloni et al.'s registration process is continuously performed and a specific predetermined calibration location is meaningless in accordance with the teachings of Aloni et al.

Furthermore, Aloni et al. do not focus the micro-imaging system on the surface of interest at the calibration location to determine a reference calibration focus setting. In fact, Aloni et al. teach that focus is maintained by an autofocus assembly 324 which is controlled by a focus control unit 326. Consequently, focus is automatic and no override or calibration procedures are taught, suggested or described.

Although the Office Action asserts that Aloni et al. teach capturing a reference calibration image at column 10, lines 8-18, the reference to Aloni et al. for such teaching is not understood. As explained above, Aloni et al. fail to teach or suggest capturing a reference calibration image much less repositioning and refocusing and capturing a recalibration image. It is therefore respectfully submitted that Aloni et al. could not possibly lead a person of ordinary skill in the art to the invention claimed in claim 1. The rejection of claims 1-6 and 9-10 is thereby traversed.

With respect to claim 14, the Office Action asserts that Aloni et al. teach acquiring tile images of an integrated circuit in column 7, lines 49-51. As explained above, Aloni et al. do not teach or suggest the acquisition of tile images. Aloni et al. teach collection of raster scann data, which is compared in real time with rasterized database data representing an ideal embodiment of the scanned object. As is understood by any person skilled in the art, tile images are acquired in a completely different way and are not acquired using a scanning process as described by Aloni et al. Consequently, Aloni et al. do not teach the step of positioning the imaging system over a location and capturing and storing a tile image. As further explained above, Aloni et al. do not teach determining thermal drift on detection of a trigger event. In contrast, Aloni et al. teach a continuous automatic registration process to achieve a global match between a binary representation of the image and the database, on-the-fly. Since the process is "on-the-fly" it cannot use a " calibration position on the IC sample". Furthermore, since

Aloni et al. teach automatic on-the-fly registration, Aloni et al. cannot continue the acquisition of tile images in accordance with predefined rules related to an extent of the thermal drift determined on detection of the trigger event. It is therefore respectfully submitted that Aloni et al. fail to teach any of the suggested steps of claim 14 and the rejection of claims 14-16 is traversed.

With respect to claim 21, the arguments set forth above with respect to claims 1 and 14 apply and the rejection of claims 21-23 is traversed.

The Office Action rejected claims 7 and 8 under 35 U.S.C. 103(a) as being unpatentable over Aloni et al. in view of Meeks et al in United States Patent No. 6,130,749. Meeks et al. teach a system and method for measuring thin film properties and analyzing two-dimensional histograms using a symmetry operation. For reasons set forth above, Aloni et al. fail to teach or suggest the invention claimed in claim 1. The cited reference to Meeks et al. teaches using a fast Fourier transform for measuring the angular distribution of polish lines on a thin-film disk. It is unclear how this relates to or would lead any person skilled in the art to the invention claimed in claims 7 and 8. It is therefore respectfully submitted that the rejection is unfounded and Applicant respectfully requests that it be withdrawn.

Allowable Subject Matter

The Office Action objected to claims 11-13, 17-20 and 24-31 as being dependent upon a rejected base claim but would be allowable if rewritten in independent form. It is respectfully submitted that in view of the comments above, claims 1-31 currently pending in this application are allowable over the art made of record.

Favourable reconsideration and early issuance of a Notice of Allowance are therefore requested.

Commissioner for Patents 09/594,169

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